REMARKS

This application has been carefully reviewed in light of the Office Action dated January 30, 2008. Claims 13 to 17 are now pending in the application, with Claims 1 to 10 and 12 having been cancelled and Claims 13 to 17 having been added therein. Claims 13 and 17 are the independent claims herein. Reconsideration and further examination are respectfully requested.

Claims 1, 2, 9 and 12 were rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 5,384,715 (Lytton), Claim 3 was rejected under 35 U.S.C. § 103(a) over Lytton in view of U.S. Patent No. 5,384,543 (Bible), Claims 4, 5 and 10 were rejected under 35 U.S.C. § 103(a) over Lytton in view of Bible and further in view of U.S. Patent No. 5,086,279 (Wochnowski), and Claims 6 to 8 were rejected under 35 U.S.C. § 103(a) over Wochnowski in view of Lytton. Without conceding the correctness of the rejections, they are believed to be obviated by the cancellation of the rejected claims. Nonetheless, newly-added Claims 13 to 17 are believed to be allowable over the art of record for at least the following reasons.

The present invention concerns a system or method for counting the number of layers of a multilayer object. Specifically, the present invention concerns counting the number of layers of a multilayer object by oscillating an electromagnetic wave pulse to irradiate either a top surface or a bottom surface of the multilayer object, and receiving electromagnetic wave pulses reflected at interfaces of the layers of the multilayer object. According to one aspect of the invention, an output value of the reflected electromagnetic wave pulses is temporally sampled at every split time to obtain a temporal waveform of the reflected electromagnetic wave pulses. The split time is shorter than a pulse width of the

temporal waveform and the temporal waveform is used for counting the number of pulses. Then, the number of layers of the multilayer object is counted based on the counted number of pulses.

By virtue of this arrangement, it is ordinarily possible to obtain a time waveform to count a number of layers of a multilayer object even if a frequency of an oscillated electromagnetic wave is in a range of 30 GHz to 100 THz.

Referring specifically to claim language, newly-added independent Claim 13 is directed to a system for counting the number of layers of a multilayer object. The system comprises an oscillation unit for oscillating an electromagnetic wave pulse having a frequency in a range from 30 GHz to 100 THz to irradiate either a top surface or a bottom surface of the multilayer object. The system further includes a reception unit for receiving electromagnetic wave pulses reflected at interfaces of the layers of the multilayer object. The system also includes a processing unit for temporally sampling an output value of the reflected electromagnetic wave pulses at every split time to obtain a temporal waveform of the reflected electromagnetic wave pulses, the split time being shorter than a pulse width of the temporal waveform. The temporal waveform is used for counting the number of pulses, and the number of layers of the multilayer object is counted on the basis of the counted number of pulses.

Newly-added independent Claim 17 is a method claim that substantially corresponds to Claim 13.

The applied art, alone or in any permissible combination, is not seen to disclose or to suggest the features of independent Claims 13 and 17, and in particular, is not seen to disclose or to suggest at least the features of temporally sampling an output

value of reflected electromagnetic wave pulses at every split time to obtain a temporal waveform of the reflected electromagnetic wave pulses, the split time being shorter than a pulse width of the temporal waveform, wherein the temporal waveform is used for counting a number of pulses, and a number of layers of a multilayer object is counted on the basis of the counted number of pulses.

Lytton is seen to disclose a system used to obtain digitized images of a reflected radar signal from a multilayer system. In Lytton, standard mathematical techniques are applied to these images to determine a number of layers, a thickness of each layer, and a dielectric constant for each layer within the multilayer system. (See Lytton, Abstract). For example, a number of peaks in the reflected signal indicates the number of layers comprising the multilayer system. (See Lytton, column 3, lines 44 to 46). Thus, while Lytton may be seen to disclose indicating a number of layers based on the number of peaks in a reflected signal, Lytton is not seen to disclose temporally sampling an output value of reflected electromagnetic wave pulses at every split time to obtain a temporal waveform of the reflected electromagnetic wave pulses, the split time being shorter than a pulse width of the temporal waveform, wherein the temporal waveform is used for counting a number of pulses, and a number of layers of a multilayer object is counted on the basis of the counted number of pulses.

The remaining applied references, namely Bible and Wochnowski, either alone or in any permissible combination, are not seen to cure the deficiencies of Lytton. Bible is seen to teach transmitting a microwave signal at a structural member and receiving a microwave signal reflected by the structural member for evaluating characteristics of the structural member. In Bible, a phase angle difference is determined between the two

microwave signals using a signal splitter and a balanced mixer, and the difference in phase angles varies in accordance with differences in size, shape and locations of constituent materials within the structural member. Wochnowski is seen to teach measuring the moisture content of certain commodities using a source of electrical energy and a monitoring device. The commodity is exposed to the electrical energy and the moisture influences phase and/or damping of oscillations of the electrical energy. The monitoring device then obtains the changes of the electrical energy and transmits the changes as signals to a processing circuit which processes the signals into moisture signals.

However, Bible and Wochnowski are not seen to add anything that, when combined with Lytton would have resulted in at least the features of temporally sampling an output value of reflected electromagnetic wave pulses at every split time to obtain a temporal waveform of the reflected electromagnetic wave pulses, the split time being shorter than a pulse width of the temporal waveform, wherein the temporal waveform is used for counting a number of pulses, and a number of layers of a multilayer object is counted on the basis of the counted number of pulses.

Accordingly, independent Claims 13 and 17 are believed to be allowable.

The other pending claims in the application are each dependent from the independent claims discussed above and are believed to be allowable over the applied references for at least the same reasons. Because each dependent claim is deemed to define an additional aspect of the invention, however, the individual consideration of each on its own merits is respectfully requested.

No other matters having been raised, the entire application is believed to be in condition for allowance and such action is respectfully requested at the Examiner's earliest convenience.

Applicants' undersigned attorney may be reached in our Costa Mesa, California office at (714) 540-8700. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,

/Edward Kmett/

Edward A. Kmett
Attorney for Applicants
Registration No.: 42,746

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3800
Facsimile: (212) 218-2200

FCHS_WS 2091984v1